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SMD Operations Procedures Manual

8.1.3.7 OPERATION OF THE MAGCOOL SYSTEM

Text Pages 1 through 3
Attachment 1

Hand Processed Changes

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Revision 01

Approved

[Signature on File](#)

Division Head

Date

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SMD-OPM 8.1.3.7
Category B

Revision 01
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8.1.3.7 Operation of the MAGCOOL System

1.0 Purpose

This procedure provides instruction for STARTUP/SHUTDOWN and operations of the MAGCOOL Systems for Horizontal Tests. It includes pump & purge, 100 and 5 K cooldown, test magnet at liquid helium temperature and warmup magnet at the end of the test.

2.0 Responsibilities and Scope

- 2.1 The operator is responsible for the STARTUP/SHUTDOWN, and operation of the MAGCOOL Systems. As of 2004, among the original 5 Test Bays: Bay C is allocated for testing LHC magnets, Bay D is to be used for DESY type magnets and Bay E for RHIC type magnets. Bay A is for liquefying helium for vertical tests and Bay B is disabled.
- 2.2 The operator is responsible for the control of environmental aspects as defined in course number AM-ENV-F56.

3.0 Prerequisites

- 3.1 The operator shall be instructed by a supervisor or designee.
- 3.2 Instruction shall include operation of CRT, 100 HP Sullairs, Mycom compressor, MAGCOOL refrigerator (Model 4000), Pump to Purge, Cooldown #1, Cooldown #2, Test and Measure, Purifiers and WARMUP Systems.

4.0 Precautions

Hearing protection to be worn in the Compressor Rooms, and in the Refrigerator Room.

- 4.1 Ensure that no personnel are near units to be started unless they are issued hearing protection and accompanied by authorized personnel.

5.0 Procedure

5.1. Startup

- 5.1.1 Complete system STARTUP CHECK LIST (Attachment 1).

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5.1.2 Proceed to compressor startup of CS4, CS5 and CS6 100 HP compressor startup and shutdown (SMD OPM 8.1.3.5).

5.1.3 Proceed to PURIFIER startup (SMD OPM 8.1.3.9).

5.2 Standard Operation

5.2.1 PUMP AND PURGE (SMD OPM 8.1.3.8)

5.2.2 COOLDOWN #1 (SMD OPM 8.1.3.10)

5.2.3 COOLDOWN #2 (SMD OPM 8.1.3.11)

5.2.4 TEST AND MEASURE (SMD OPM 8.1.3.12)

5.2.5 WARMUP (SMD OPM 8.1.3.14)

5.3 Routine Log Taking and Periodic System Checks

5.3.1 Horizontal log sheet shall be taken at the beginning of each shift.

5.3.2 Systems checks or rounds shall be done several times a shift.

5.4 System Shutdown

5.4.1 Proceed to Refrigerator Startup and Shutdown (SMD OPM 8.1.3.13).

5.4.2 Proceed to Mycom Compressor Startup and Shutdown (SMD OPM 8.1.3.1).

5.4.3 Proceed to 100 HP Compressor Startup and Shutdown (SMD OPM 8.1.3.5).

5.4.4 Proceed to Purifier Startup and Shutdown (SMD OPM 8.1.3.9).

5.5 Electric Power Failure

5.5.1 Each system will go to a safe mode in case of a loss of air pressure, electric power or computer failure.

5.5.2 Restart by following steps 5.1.1 and 5.1.2 above. Then choose standard operation step to suite step when power failed.

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6.0 Documentation

- 6.1 Documentation is kept in a logbook in the CRYOGENIC Control Room, Bldg. 902.

7.0 References

- 7.1 Operation and Maintenance manuals provided by CVI are kept in the CRYOGENIC Control Room. An "Operation Program Guide" and an Operation Guide is given to all operators. A copy is in the CRYOGENIC Control Room.

8.0 Attachments

- 1. MAGCOOL System Startup Check List

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Attachment 1

MAGCOOL System Startup Check List

1. Check all oil levels are correct.

_____ 100 HP Sullairs

_____ Mycom

_____ Vacuum Pumps

_____ 2. Check to insure all switches in the I/O rack are in their proper position.

_____ 3. Check and record water tower temperature. _____ °F

_____ 4. Check and record water pressure. _____ psig

5. Check to insure all water systems are on.

_____ Mycom

_____ Diffusion Pumps for Cooldown #1

_____ Diffusion Pumps for Low Temp.

_____ Diffusion Pumps for the Refrigerator

6. Check and record vacuums.

_____ Supply Header _____ Torr

_____ Return Header _____ Torr

_____ Refrigerator _____ Torr

_____ Cooldown #1 _____ Torr

_____ Low Temp _____ Torr

7. Comments: _____

Checked By: _____

Date: _____ Time: _____